REMARKS

Reconsideration of the statement that an IDS filed November 5, 2009 was not considered because legible copies were not submitted is respectfully requested. In actual fact, no new IDS was filed at that time, but only a new listing form for art already submitted to the PTO was provided for the convenience of the Examiner so that such art would be listed on the issued patent. A review of the IFW shows that copies of all listed references are in the PTO file, together with any required description of non-English languish material. A formal statement that there was consideration of those references is respectfully requested and for that purpose, a clean copy of that art listing form is attached for the convenience of the Examiner.

The suggested guideline for layout of the specification is noted, but that suggestion is not mandatory. Nevertheless, the existing layout has again been reviewed and no further changes are deemed appropriate.

In order to expedite allowance of this application, the independent claims have been amended to specify that the non-virgin rock material is sewage sludge ash, that the ash contains 8-20% Fe_2O_3, as described on page 10, lines 24, and that the charge of mineral material contains from 1 to 15% sewage sludge ash by weight of charge as disclosed on page 11, line 18.

Claims 1-4, 6, 7, 9, 10, 12, 13, 15, 18, 19, 22, and 24-27 were rejected under 35 U.S.C. § 103 over Jensen in view of Tooley. This rejection is respectfully traversed.

Jensen relates to man-made vitreous fibers (MMVF) which are durable in use, have a solubility in biologic fluid which is considered to be acceptable, and which can be

made from readily-available materials, generally rocks or minerals, to give a desired analysis. If desired, the charge can be in the form of briquettes. As the Office Action recognizes, Jensen does not disclose the use of any non-virgin rock material at any time during formation of the briquettes.

Tooley is an excerpt of two pages from a handbook relating to glass manufacture. The current Office Action primarily relies on this reference because Table III B-II contains a reference to bone ash (which has now been deleted from the claims under consideration). As to the prior claims reciting that the non-virgin material was sewage sludge ash, the Office Action construed the reference to bone ash as effectively being the same as sewage sludge ash on the grounds that that the bone ash could originate from sewage sludge. It is respectfully submitted that this approach is no longer possible since page 11 of the present application discloses that bone ash may contain up to 2% Fe_2O_3 whereas the claims as amended herein recite that the ash contains at least 8% Fe_2O_3.

Since Jensen does not disclose the use of any non-virgin rock material when forming briquettes, as the Office Action recognizes, and Tooley does not teach or suggest use of sewage sludge ash containing at least 8% Fe_2O_3 for any purpose, the rejection is untenable and should be withdrawn.

Claims 1, 5, and 8 were rejected under 35 U.S.C. § 103 over Jensen in view of Perander and Kaneko and claims 1, 5, 9, 19, and 11 were rejected under 35 U.S.C. § 103 over Jensen in view of Perander and Juul. Both of these rejections are respectfully traversed.

Jensen has been discussed above. Perander has been cited only for its teaching of making briquettes for mineral wool production but that is already disclosed in Jensen. Hence, these two references are cumulative.

Kaneko teaches production of slag wool in a rotary melting furnace by a process which involves separating sludge from sewage, burning the sludge to obtain an ash, melting the ash to obtain a liquid sludge and scattering the liquid ash. The Office Action asserts that the teaching of using a sludge slag to make fibers makes it obvious to use the slag in Jansen's briquettes, but the basis for this assertion is not stated, explained or apparent. Sewage sludge ash is a particulate and Kaneko does not teach or suggest the use of a particulate (or anything else) to make briquettes. Kaneko does not teach or suggest incorporating a sewage sludge slag or an ash made from sewage sludge into a briquette. Further, it is well known that sewage sludge exhibits puzzolanic curing which means it exhibits a very slow curing speed and might only develop the same strength as a hydraulic binder after several weeks. At best, Kaneko merely discloses that the ash exists.

Juul teaches that a glass produced from various raw materials including sludge can, after mineralization, be pressed into briquettes that are hardened and subsequently melted. It will be appreciated that the object of Juul is to produce a glass which will incorporate more sludge waste, such as dried sludge waste, in order to achieve a reduced use of space when deposited in waste disposal areas, and also without producing deposit material which contains environmental harmful and hazardous substances. In furtherance of this objective, laboratory scale examples 1 and 2 use high amount of ash, 34.4% and 33%,respectively, and the industrial scale examples 3 and 4 use even greater

amounts of mineralized sludge, namely 75.5% and 70.0%, respectively. Using smaller amounts is directly contrary to the basic objective of Juul. In contrast to this teaching, the instant claims incorporate only up to 15% sewage sludge ash into the briquettes. Using such a low amount is inconsistent with the "use as much as possible" approach of Juul.

Neither Kaneko nor Juul cure any of the deficiencies in Perlander or Jensen, and therefore, both rejections should be withdrawn.

Claim 17 was rejected under 35 U.S.C. § 103 over Jensen in view of Perlander and either Juul or Kaneko in further view of Sims. The base combination of references has been discussed above. Sims has been cited only for teaching that some waste products yield metals when melted as a predicate for the assertion that it would be obvious to separate any iron that is generated by the process. Thus, Sims is not asserted to cure any of the basic deficiencies in the combination of the other references and in fact does not do so.

While the foregoing considerations dictate withdrawal of all rejections, there are further reasons to withdraw the rejections. Use of particulates in a shaft furnace, as claimed, is contraindicated because such furnaces are not adapted to handle a fine powder. Use of small particles of phosphorous-containing materials is also contraindicated because that is expected to have detrimental effect on briquette strength, an important characteristic for use in a shaft furnace where they are a part of a stack of mineral materials. Briquettes are held together with a cement and it is well known that phosphorous oxide is a retarder for cement. For briquetting to be practical, the required compressive strength must develop within a short period of say about 3 days, preferably

after 2 days, but materials which easily release the phosphorous oxide retarder are not expected to develop sufficient strength for at least about 4 weeks.

Submitted herewith is a Declaration describing experiments on the effect of sewage sludge ash on strength. The compressive strength after 2 days of storage of briquettes containing 5% or 20 % of the ash (i.e., containing the strength retarder in easy release form) was compared to conventional briquettes which did not contain the ash. It was found that the briquettes containing 5% sewage sludge ash unexpectedly had a greater compressive strength. The briquettes containing 20 % of the sewage sludge ash had a lower compressive strength. It is respectfully submitted that the finding that briquettes containing the specified sewage sludge ash at a concentration of 15% or less not only did not substantially reduce briquette compressive strength but actually increased that strength is surprising, unexpected and unpredictable. This unpredictable result confirms the patentability of the claimed invention.

In view of the above amendments and remarks, applicant believes the pending application is in condition for allowance.

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Respectfully submitted,

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By_____

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